

CLAIMS:

1. A method of diagnosing or aiding in the diagnosis of cervical cancer in a female, comprising analyzing the status of at least two biomarkers selected from the group consisting of: hTERT, IGFBP-3, transferrin receptor, beta-catenin, Myc-HPV E6 interaction, HPV E7, and telomere length, in cervical cells of the female.
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2. The method of claim 1, wherein, if one of the at least two biomarkers is hTERT, then the expression level of hTERT is analyzed and increased expression level of hTERT relative to an appropriate control indicates that
10 the female has cervical cancer or is at increased risk of developing cervical cancer.
3. The method of claim 1, wherein, if one of the at least two biomarkers is IGFBP-3, then the expression level of IGFBP-3 is analyzed and increased expression level of IGFBP-3 relative to an appropriate control indicates that
15 the female has cervical cancer or is at increased risk of developing cervical cancer.
4. The method of claim 1, wherein, if one of the at least two biomarkers is transferrin receptor, then the expression level of transferrin receptor is analyzed and increased expression level of transferrin receptor relative to an
20 appropriate control indicates that the female has cervical cancer or is at increased risk of developing cervical cancer.
5. The method of claim 1, wherein, if one of the at least two biomarkers is beta-catenin, then the level of beta-catenin in the cytoplasm and/or nucleus is analyzed and increased level of beta-catenin in the cytoplasm and/or nucleus
25 relative to an appropriate control indicates that the female has cervical cancer or is at increased risk of developing cervical cancer.

6. The method of claim 1, wherein, if one of the at least two biomarkers is Myc-HPV E6 interaction, then the association between Myc and HPV E6 is analyzed and the association between Myc and HPV E6 indicates that the female has cervical cancer or is at increased risk of developing cervical
5 cancer.
7. The method of claim 1, wherein, if one of the at least two biomarkers is HPV E7, then HPV E7 expression is analyzed and the presence of HPV E7 expression indicates that the female has cervical cancer or is at increased risk of developing cervical cancer.
- 10 8. The method of claim 1, wherein, if one of the at least two biomarkers is telomere length, then the telomere length is analyzed and increased telomere length relative to an appropriate control indicates that the female has cervical cancer or is at increased risk of developing cervical cancer.
- 15 9. A method of diagnosing or aiding in the diagnosis of cervical cancer in a female, comprising analyzing the status of at least two biomarkers, wherein one of the at least two biomarkers is Myc-HPV E6 interaction, and a second biomarker is selected from the group consisting of: hTERT, IGFBP-3, transferrin receptor, beta-catenin, HPV E7, and telomere length, in cervical cells of the female.
- 20 10. The method of claim 9, wherein, if one of the at least two biomarkers is Myc-HPV E6 interaction, then the association between Myc and HPV E6 is analyzed and the association between Myc and HPV E6 indicates that the female has cervical cancer or is at increased risk of developing cervical cancer.
- 25 11. The method of claim 9, wherein, if one of the at least two biomarkers is hTERT, then the expression level of hTERT is analyzed and increased expression level of hTERT relative to an appropriate control indicates that

the female has cervical cancer or is at increased risk of developing cervical cancer.

12. The method of claim 9, wherein, if one of the at least two biomarkers is IGFBP-3, then the expression level of IGFBP-3 is analyzed and increased expression level of IGFBP-3 relative to an appropriate control indicates that the female has cervical cancer or is at increased risk of developing cervical cancer.
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13. The method of claim 9, wherein, if one of the at least two biomarkers is transferrin receptor, then the expression level of transferrin receptor is analyzed and increased expression level of transferrin receptor relative to an appropriate control indicates that the female has cervical cancer or is at increased risk of developing cervical cancer.
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14. The method of claim 9, wherein, if one of the at least two biomarkers is beta-catenin, then the level of beta-catenin in the cytoplasm and/or nucleus is analyzed and increased level of beta-catenin in the cytoplasm and/or nucleus relative to an appropriate control indicates that the female has cervical cancer or is at increased risk of developing cervical cancer.
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15. The method of claim 9, wherein, if one of the at least two biomarkers is HPV E7, then HPV E7 expression is analyzed and the presence of HPV E7 expression indicates that the female has cervical cancer or is at increased risk of developing cervical cancer.
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16. The method of claim 9, wherein, if one of the at least two biomarkers is telomere length, then the telomere length is analyzed and increased telomere length relative to an appropriate control indicates that the female has cervical cancer or is at increased risk of developing cervical cancer.
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17. A method of detecting immortalization of cervical cells in a female, comprising analyzing the status of at least two biomarkers selected from the

group consisting of: hTERT, IGFBP-3, transferrin receptor, beta-catenin, Myc-HPV E6 interaction, HPV E7, and telomere length, in cervical cells of the female.

18. The method of claim 17, wherein, if one of the at least two biomarkers is hTERT, then the expression level of hTERT is analyzed and increased expression level of hTERT relative to an appropriate control indicates immortalization of cervical cells in a female.
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19. The method of claim 17, wherein, if one of the at least two biomarkers is IGFBP-3, then the expression level of IGFBP-3 is analyzed and increased expression level of IGFBP-3 relative to an appropriate control indicates immortalization of cervical cells in a female.
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20. The method of claim 17, wherein, if one of the at least two biomarkers is transferrin receptor, then the expression level of transferrin receptor is analyzed and increased expression level of transferrin receptor relative to an appropriate control indicates immortalization of cervical cells in a female.
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21. The method of claim 17, wherein, if one of the at least two biomarkers is beta-catenin, then the level of beta-catenin in the cytoplasm and/or nucleus is analyzed and increased level of beta-catenin in the cytoplasm and/or nucleus relative to an appropriate control indicates immortalization of cervical cells in a female.
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22. The method of claim 17, wherein, if one of the at least two biomarkers is Myc-HPV E6 interaction, then the association between Myc and HPV E6 is analyzed and the association between Myc and HPV E6 indicates immortalization of cervical cells in a female.
- 25 23. The method of claim 17, wherein, if one of the at least two biomarkers is HPV E7, then HPV E7 expression is analyzed and the presence of HPV E7 expression indicates immortalization of cervical cells in a female.

24. The method of claim 17, wherein, if one of the at least two biomarkers is telomere length, then the telomere length is analyzed and increased telomere length relative to an appropriate control indicates immortalization of cervical cells in a female.
- 5 25. A method of treating a female suffering from cervical cancer, comprising administering to the female a therapeutically effective amount of an agent which blocks interaction between Myc and HPV E6.
26. The method of claim 25, wherein the agent is a small molecule.
27. The method of claim 25, wherein the agent is a nucleic acid.
- 10 28. The method of claim 25, wherein the agent is a polypeptide.
29. The method of claim 25, wherein the agent is an antibody.
30. A method of preventing the onset of cervical cancer or reducing the extent to which it occurs in a female, comprising administering to the female an effective amount of an agent which blocks interaction between Myc and
- 15 HPV E6, wherein the agent is effective to prevent the onset of cervical cancer or reduce the extent to which it occurs.
31. A method of treating a female suffering from cervical cancer, comprising administering to the female a therapeutically effective amount of an agent which blocks or reduces the level of expression of transferrin receptor.
- 20 32. The method of claim 31, wherein the agent is a nucleic acid.
33. The method of claim 32, wherein the nucleic acid is an antisense nucleic acid of transferrin receptor.

34. The method of claim 32, wherein the nucleic acid is an RNAi construct of transferrin receptor.
35. The method of claim 31, wherein the agent is a polypeptide.
36. The method of claim 31, wherein the agent is a small molecule.
- 5 37. A method of preventing the onset of cervical cancer or reducing the extent to which it occurs in a female, comprising administering to the female an effective amount of an agent which blocks or reduces the level of expression of transferrin receptor, wherein the agent is effective to prevent the onset of cervical cancer or reduce the extent to which it occurs.
- 10 38. A method of treating a female suffering from cervical cancer, comprising administering to the female a therapeutically effective amount of an agent which blocks signaling through the beta-catenin pathway.
39. The method of claim 38, wherein the agent is a nucleic acid.
40. The method of claim 39, wherein the nucleic acid is an antisense nucleic acid of beta-catenin.
- 15 41. The method of claim 39, wherein the nucleic acid is an RNAi construct of beta-catenin.
42. The method of claim 38, wherein the agent is a polypeptide.
43. The method of claim 38, wherein the agent is a small molecule.
- 20 44. The method of claim 38, wherein the agent is an antibody.
45. A method of preventing the onset of cervical cancer or reducing the extent to which it occurs in a female, comprising administering to the female an effective amount of an agent which blocks signaling through the beta-catenin

pathway, wherein the agent is effective to prevent the onset of cervical cancer or reduce the extent to which it occurs.

46. A method of treating a female suffering from cervical cancer, comprising administering to the female a therapeutically effective amount of an agent which blocks or reduces the level of expression of hTERT.
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47. The method of claim 46, wherein the agent is a nucleic acid.
48. The method of claim 47, wherein the nucleic acid is an antisense nucleic acid of hTERT.
49. The method of claim 47, wherein the nucleic acid is an RNAi construct of hTERT.
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50. The method of claim 46, wherein the agent is a polypeptide.
51. The method of claim 46, wherein the agent is a small molecule.
52. A method of preventing the onset of cervical cancer or reducing the extent to which it occurs in a female, comprising administering to the female an effective amount of an agent which blocks or reduces the level of expression of hTERT, wherein the agent is effective to prevent the onset of cervical cancer or reduce the extent to which it occurs.
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53. A method of treating a female suffering from cervical cancer, comprising administering to the female a therapeutically effective amount of an agent which blocks or reduces the level of expression of IGFBP-3.
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54. The method of claim 53, wherein the agent is a nucleic acid.
55. The method of claim 54, wherein the nucleic acid is an antisense nucleic acid of IGFBP-3.

56. The method of claim 47, wherein the nucleic acid is an RNAi construct of IGFBP-3.
57. The method of claim 46, wherein the agent is a polypeptide.
58. The method of claim 46, wherein the agent is a small molecule.
- 5 59. A method of preventing the onset of cervical cancer or reducing the extent to which it occurs in a female, comprising administering to the female an effective amount of an agent which blocks or reduces the level of expression of IGFBP-3, wherein the agent is effective to prevent the onset of cervical cancer or reduce the extent to which it occurs.
- 10 60. A method of classifying the grade of a cervical lesion for diagnostic and prognostic purpose in a female, comprising:
 - (a) determining the status of at least two biomarkers in a cervical cell of a female to provide an individual biomarker diagnostic for cervical lesions, wherein the at least two biomarkers are selected from the group consisting of: hTERT, IGFBP-3, transferrin receptor, beta-catenin, Myc-HPV E6 interaction, HPV E7, and telomere length;
 - (b) comparing the status of the at least two biomarkers from (a) with a biomarker reference panel; and
 - (c) classifying a cervical lesion for the female by said comparison of (b).
- 15 61. The method of claim 60, wherein, if one of the at least two biomarkers is hTERT, then the status of the biomarker is the expression level of hTERT.
- 20 62. The method of claim 60, wherein, if one of the at least two biomarkers is IGFBP-3, then the status of the biomarker is the expression level of IGFBP-3.

63. The method of claim 60, wherein, if one of the at least two biomarkers is transferrin receptor, then the status of the biomarker is the expression level of transferrin receptor.
64. The method of claim 60, wherein, if one of the at least two biomarkers is beta-catenin, the status of the biomarker is the level of beta-catenin in the cytoplasm and/or nucleus.
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65. The method of claim 60, wherein, if one of the at least two biomarkers is Myc-HPV E6 interaction, then the status of the biomarker is the association between Myc and HPV E6.
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66. The method of claim 60, wherein, if one of the at least two biomarkers is HPV E7, then the status of the biomarker is the expression of HPV E7.
67. The method of claim 60, wherein, if one of the at least two biomarkers is telomere length, then the status of the biomarker is the telomere length.
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68. The method of claim 60, wherein the biomarker reference panel comprises a constituent panel developed using cervical cancer, high grade cervical lesion, low grade cervical lesion, and control group populations.
69. A kit for diagnosing or aiding in the diagnosis of cervical cancer, comprising reagents for assessing the status of at least two biomarkers selected from the group consisting of: hTERT, IGFBP-3, transferrin receptor, beta-catenin,
20 Myc-HPV E6 interaction, HPV E7, and telomere length.
70. The kit of claim 69, wherein the reagents are nucleic acids.
71. The kit of claim 69, wherein the reagents are antibodies.
72. The kit of claim 69, further comprising appropriate control reagents.